Arkansas **Grade 5**

FlyBy Math™ Alignment
Arkansas Mathematics Curriculum Framework

Strand: Number and Operations

Standard 3: Numerical Operations and Estimation
Students shall compute fluently and make reasonable estimates

Student Learning Expectation	***FlyBy Math*™ Activities**
NO.3.5.3 Solve, with and without appropriate t*echnology*, two-step problems using a variety of methods and tools (i.e. objects, mental computation, paper and pencil)	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
NO.3.5.4 Develop and use *strategies* to *estimate* the results of *whole number* computations and to judge the reasonableness of such results	--Predict outcomes and explain results of mathematical models and experiments. --Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.

Strand: Algebra

Standard 4: Patterns, Relations and Functions
Students shall recognize, describe, and develop patterns, relations and functions

Student Learning Expectation	***FlyBy Math*™ Activities**
A.4.5.1 Solve problems by finding the next term or missing term in a *pattern* or *function* table using real world situations	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.

Standard 6: Algebraic Models
Students shall develop and apply mathematical models to represent and understand quantitative relationships

Student Learning Expectation	***FlyBy Math*™ Activities**
A.6.5.1 Draw conclusions and make predictions, with and without appropriate *technology*, from models, tables and *line graphs*	--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions. --Predict outcomes and explain results of mathematical models and experiments.

Standard 7: Analysis of Change **Students shall analyze change in various contexts**	
Student Learning Expectation	***FlyBy Math™* Activities**
A.7.5.1 Model and describe quantities that change using real world situations Ex. age and height	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation. --Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

Strand: Geometry

Standard 10: Coordinate Geometry **Students shall specify locations and describe spatial relationships using coordinate geometry and other representational systems**	
Student Learning Expectation	***FlyBy Math™* Activities**
G.10.5.1 Use geometric vocabulary (horizontal/x-axis, vertical/ y-axis, *ordered pairs*) to describe the location and plot points in *Quadrant I*	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes and predict outcomes

Strand: Measurement

Standard 12: Physical Attributes **Students shall use attributes and tools of measurement to describe and compare mathematical and real-world objects**	
Student Learning Expectation	***FlyBy Math™* Activities**
M.12.5.1 Identify and select appropriate units and tools to measure Ex. angles with degrees, distance with feet	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
Standard 13: Systems of Measurement **Students shall identify and use units, systems and processes of measurement**	
Student Learning Expectation	***FlyBy Math™* Activities**
M.13.5.1 Solve real world problems involving one *elapsed time*, counting forward (calendar and clock)	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
M.13.5.5 Count the distance between two points on a horizontal or vertical line and compare the lengths of the paths on a grid Ex. shortest path, paths of equal length, etc	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

Strand: Data Analysis and Probability	
Standard 14: Data Representation **Students shall formulate questions that can be addressed with data and collect, organize and display**	
Student Learning Expectation	***FlyBy Math™* Activities**
DAP.14.5.2 Collect *numerical* and *categorical data* using surveys, observations and experiments that would result in *bar graphs*, *line graphs*, *line plots* and *stem-and-leaf plot*s	--Conduct simulation and measurement for several aircraft conflict problems. --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
DAP.14.5.3 Construct and interpret *frequency tables*, charts, *line plots*, *stem-and-leaf plots* and *bar graphs*	--Represent distance, rate, and time data using line plots, bar graphs, and line graphs. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
Standard 15: Data Analysis **Students shall select and use appropriate statistical methods to analyze data**	
Student Learning Expectation	***FlyBy Math™* Activities**
DAP.15.5.1 Interpret graphs such as *line graphs*, *double bar graphs*, and *circle graphs*	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
Standard 16: Inferences and Predictions **Students shall develop and evaluate inferences and predictions that are based on data**	
Student Learning Expectation	***FlyBy Math™* Activities**
DAP.16.5.1 Make predictions and justify conclusions based on data	--Predict the relative motion of two airplanes on given paths. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.